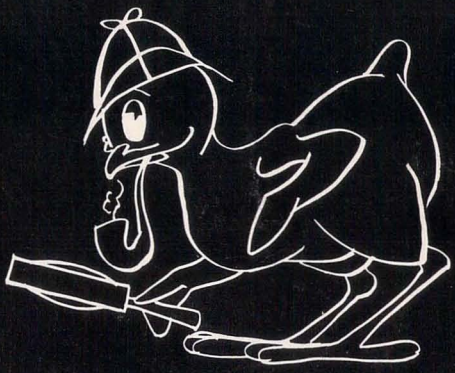

KEYWORD CROSS REFERENCE

FOR THE VIC 20™

with Tape and/or Disk • Requires 8K Expansion

RESEARCH ASSISTANT 2.0

by Ann Palmer-McCarty

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RESEARCH ASSISTANT 2.0

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RESEARCH ASSISTANT 2.0

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1.0 INTRODUCTION TO RESEARCH ASSISTANT 2.0

1.1 General Information

RESEARCH ASSISTANT 2.0 consists of three programs which allow you to keep track of reference data from books and/or periodicals and to create cross reference lists by keyword to help you locate the right reference when you need it. The programs are:

RA.BUILD
: This program provides the capability to enter reference data. You describe the source (author, title, bibliography) and enter each reference note (page, comments, keywords, dates) and save it on either disk or tape. With a disk drive, you may also go back at any time and update this data or add more data at the end of the file.

RA.XREF.BUILD
: This program reads data file(s) created by RA.BUILD and creates a cross reference list in sorted keyword order. The cross reference list is created in memory, so the more memory expansion you have the longer your cross reference list may be. After it is created, it may be saved onto your disk or tape so you can recall it later or print it with RA.PRINT.

RA.PRINT
: This is the print program for both reference data files and cross reference files. This produces your permanent copy of the data for easy reference.

1.2 Equipment Requirements

RESEARCH ASSISTANT 2.0 runs on the VIC 20* with a minimum of 8K expansion (if you have more than 8K expansion, the programs will use whatever is available), a cassette tape drive and/or the VIC 1541 (1540) disk drive, and the VIC printer. The RA.PRINT program is easily modified for any other printer (see section 10.0, Program Modifications.)

1.3 Backing Up Programs onto Disk from tape

RESEARCH ASSISTANT 2.0 is sold on cassette tape or disk. If you have a disk drive and want to store your tape programs onto a diskette for faster, more convenient loading, follow this procedure:

1) Make sure the disk drive is turned on and place a diskette in the port.

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2) If you have a diskette that is already formatted for use, skip this step. To format a new diskette (and erase all data previously stored on it), type:

OPEN 15,8,15 (RETURN)

PRINT#15,"N:diskname,xx" (RETURN)
where diskname is any combination of characters up to 16 in length and xx is a two-character code which identifies this diskette. xx should be unique from all your other diskettes.

CLOSE 15 (RETURN)

The initialization function takes a minute or so to complete. When the red light on the disk drive goes off, you are done. If the red light flashes, you have an error. Consult the disk drive manual or your local computer dealer if you need more information.

3) Place the cassette in the tape drive. The RA.BUILD program is stored on side A. Rewind the tape and type:

LOAD "RA.BUILD" (RETURN)

and press PLAY on the tape drive. When the program is loaded, type:

SAVE "RA.BUILD",8 (RETURN)

to save the program onto your diskette.

Repeat step 3 above for RA.XREF.BUILD and RA.PRINT, both on side B of the program tape.

Keep the tape as a backup copy. See section 12.0, License and Warranty.

1.4 Color Conventions Used for Screen Display

In order to take advantage of the color capabilities of the VIC 20, we have adopted the following convention:

cyan	used for general information from the program
green	used for messages which prompt for input
red	shows data you entered.

1.5 Differences from RESEARCH ASSISTANT 1.0

The following items are the major areas of change in RESEARCH ASSISTANT 2.0:

1. Works with both disk and tape input/output
2. Program is set up for RS-232 printers with a few simple modifications.
3. Use of VIC screen color

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4. Faster and easier input and editing of data.
5. Added the ability to update reference data (only with disk).
6. Print function removed from RA.BUILD. RA.PRINT has all print functions and replaces RA.XREF.PRINT.
7. Memory used more efficiently in RA.XREF.BUILD so there are more slots available.
8. Improved inputting and editing of date categories.
9. The internal file format is different but all RA 1.0 files are compatible.
10. Programs are formatted for 22, 40, or 80 column screen with simple modification.

1.6 Instructions for Beginners

If you are a new user of the VIC 20, we recommend that you spend a little bit of time becoming familiar with the keyboard and its general operation. RESEARCH ASSISTANT is designed to be largely self explanatory and will prompt you for the information as it is needed but it is assumed that you are familiar with the basic operation of the VIC 20 as described in Commodore's book: "Personal Computing on the VIC 20--a friendly computer guide." If you are using disk for input/output, it is assumed that you are also familiar with the basics of disk use and management as described in Commodore's "VIC 1540 User's Manual." This documentation booklet provides some general information and helpful hints for using the RESEARCH ASSISTANT programs.

The programs are all essentially menu driven. When you are presented with a menu (list of options), you need only enter the single character which corresponds to the option you wish to choose. The green character ▒ indicates that the program is waiting for you to enter one character. When the program displays a message and is followed by a flashing question mark (usually red), the program is waiting for some data (such as a file name) followed by the RETURN key. Another common prompt is Y/N. The program has asked a question and you must respond either Y (for yes) or N (for no).

You should become familiar with the keyboard and specifically the cursor keys (up, down, right, left), the INST/DEL as it is used to insert or delete characters, and the function keys on the right hand side of the keyboard. (Note F2 is F1 with the Shift key, etc.)

We recommend that you read through this booklet before you even begin to try to run the programs to familiarize yourself with the basic concepts and terminology. Happy research !!

2.0 DATA FILE DESCRIPTIONS

There are two kinds of files created by RESEARCH ASSISTANT: Reference data files (RA. prefix) and Cross reference files (RAX. prefix). The general format of each of these is described below.

2.1 Reference Data Files (RA. prefix)

It is important to understand the format of the RA. file, the different record types (source and reference), and their relationship. This is particularly important when you are using the update function of RA.BUILD.

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Think of the file as a box of 3x5 cards or records. The cards are arranged in sequence and each one is identified by a number. The cards are grouped together by source. The first card in each group is the source card (parent) followed by a series of reference cards containing various notes. For example:

```
RECORD #      TYPE & NUMBER

   1          Source 101
   2             Reference 1
   3             Reference 2
   4             Reference 3
   5             Reference 4
   6          Source 102
   7             Reference 1
   8             Reference 2
```

Each of the references is associated with the preceding source. Therefore a source is identified by its source id number and a reference is identified by both its reference number and the parent source number.

2.1.1 Source record

The following are the items of data in each source record:

SOURCE ID NUMBER
: This is the number which is used to identify the book or periodical, that is the source of the reference information. This can be any number between 1 and 9999. You assign the source id numbers and each one assigned should be unique. Be sure to keep track of the numbers as you assign them so you will not assign the same number to two different sources. As mentioned above, the source id number is also used to identify the associated references.

AUTHOR
: This is free-form data to give the author's name and any other desired information up to 255 characters of data.

TITLE
: This is also free-form data to describe the title and any related data. Up to 255 characters in length.

BIBLIOGRAPHY
: This is free-form data to describe any additional information, such as: publisher, place and year of publication, etc. Up to 255 characters in length.

2.1.2 Reference record

The reference record is like the 3x5 note card used to collect a

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specific item of reference information. Each reference contains the following data:

REFERENCE NUMBER
This number is assigned by the program and is increased by one for each successive reference. You specify the beginning reference number when you begin a new source and the program assigns it from then on. The maximum number of references per source is 9999.

PAGE NUMBER(S)
This is free form data up to 40 characters in length. You may use any notation for page number(s) including commas, colons, dashes, etc.

COMMENTS
This is the body of the reference note. You may enter up to 1020 characters of free-form descriptive data or notes. Data is entered in blocks of 255 characters each. The blocks are treated as continuous text.

KEYWORDS
You may have up to 12 keywords associated with each reference. Each keyword is free-form data up to 40 characters in length.

KEY DATES
If your reference data is date sensitive, you will want to enter the date or range of dates related to this reference note. There are two key dates allowed: a FROM date and a TO date. The two dates together establish the date range. The FROM date used alone indicates a specific date.

2.2 Cross Reference File (RAX. prefix)

This file is created by the RA.XREF.BUILD program and contains the date periods which you defined and the sorted keyword cross reference list. The data in the file consists of three types: first, the date periods (20 dates); second, two numbers which represent the number of keyword slots used by the cross reference list and the number of repetitions of the source-reference numbers. The standard value for repetitions is 5. (For additional information on changing the standard value, see section 10.0, Program Modifications). The program checks that there are enough keyword slots available and ensures that the number of repetitions in the file is the same as the number currently defined in the program. The third type of data represents the bulk of the file: the keyword and associated source and reference numbers and date periods. For each keyword there are 5 (or whatever the number of repetitions is) sets of source number, reference number, and date category range. If there are more than 5 (or # repetitions) references to a given keyword, the keyword is repeated in the file. Each keyword record, therefore, looks like this:

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5 (or N) sets of:

Source-number.Reference-number

(a single numeric value where the left portion is the source number and the right of the decimal point represents the reference number.)

Date-per-from.Date-per-to

(a single number where the left portion is the from date period and the right portion is the to period)

3.0 RA.BUILD USAGE INSTRUCTIONS

3.1 Loading RA.BUILD

Be sure to turn on all peripheral devices (disk) before beginning any of the following steps. Turning the power of a device on during the execution of a program may sometimes cause the computer to reinitialize itself, thus losing both program and data from memory.

3.1.1 Loading from disk

If you have not already done so, follow the instructions in section 1.3, Backing up programs onto disk from tape. To load the program from disk, place the proper diskette in the disk drive port and type:

LOAD "RA.BUILD",8 (RETURN)

When the program is loaded, the screen will display READY.

3.1.2 Loading from tape

The first step is to place the program cassette tape in the cassette drive with side A up, rewind the tape and type:

LOAD "RA.BUILD" (RETURN)

You will be prompted to press PLAY on the cassette drive and when the program is loaded, you will see READY on the screen.

3.2 Running RA.BUILD

After the program is loaded, type:

RUN (RETURN)

and you're on your way!

3.3 Input/Output Options

You will be asked to define which devices you will be using for input and output. The program works with either disk or tape, so enter the letter which corresponds. These choices are in effect for the duration of this run

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of the program.

Once you have made your selection and continued with the program, if you wish to change input/output options, you may select the Change I/O option from the main menu.

4.0 RA.BUILD MAIN OPTION MENU

There are four basic functions of RA.BUILD presented via the main option menu. They are:

NEW FILE
UPDATE/APPEND FILE
CHANGE I/O
QUIT

Enter the character which corresponds with the option you wish to choose. Each of these is described in detail below.

4.1 NEW FILE

This option allows you to begin a new reference data file. If you are using disk, skip the remainder of this paragraph. When you are using tape, place your output tape in the cassette drive, rewind it if necessary. If you wish to skip over some files which already exist on the tape, answer Y when the program asks: SKIP FILE(S), Y/N? You will then be asked to enter the name of the last file to be skipped. Enter its full file name (including the prefix, if any) followed by RETURN. It may take a while to skip forward to the file you designated. When it finds it, the program will print SKIPPING. Otherwise, if this is to be the first file on the tape, respond N to the skip question and proceed.

The first step is to open your output file. You will be asked for the name of the output file. The program will always begin the file name with "RA." (you do not have to enter it). When the output file is successfully opened, the program will present another list of options to allow you to add (append) data into the file. Data is added into the file one record at a time. Refer back to section 2.1, Reference Data File for a discussion of the file, each record type, and the data elements in each record. The choices are:

Source
Reference
End file

4.1.1 Source

A source must always be the first record in a new file (when creating a new file, the program will assure that you enter a source first). You must enter the following data:

SOURCE ID NUMBER
Enter any number between 1 and 9999 followed by RETURN.

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AUTHOR
Enter the author's name as free-form data. (See section 4.5 for more information on input and edit of free-form data).

TITLE
Enter the title and any related information as free-form data (See section 4.5).

BIBLIOGRAPHY
Enter any additional information as free-form data. (See section 4.5).

After you have entered the above data you will be presented with three choices for proceeding:

Verify
Save
Quit (Delete)

The Verify option allows you to review the data as you have entered it and change it if you wish. To accept the data as is, simply hit RETURN. Otherwise, enter the correct information and then hit RETURN.

The Save option stores the data into the output file buffer. When the buffer is full, it will be written to the file and you may encounter a slight delay.

The Quit option allows you to scrap the data you have just entered. It will not be written to the output file.

4.1.2 Reference

Each reference is associated with a preceding source record. The REFERENCE NUMBER is automatically assigned by the program when you add or insert a new reference. The only time you enter a reference number is immediately following adding a new source when the program asks for the beginning reference number. The following data items are entered for each reference:

REFERENCE NUMBER
Automatically assigned by the program and incremented by one for each reference. May not exceed 9999.

PAGE NUMBER(S)
You may use any notation you wish for page number(s), including commas, colons, etc. This is a free-form data item of up to 40 characters in length (see section 4.5).

COMMENTS
You may enter up to 4 comment blocks where each block can contain up to 255 characters: 1020 characters in all. The blocks are treated as continuous text so if you begin a word in one block, just continue it in the next. When you edit a block and insert data, any characters that "fall off" the block on the screen will

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be added to the beginning of the next block. No data will be lost unless the data you insert causes the total number of characters to exceed the 4 block capacity. (See section 4.5 for more information on input and edit of free-form data).

KEYWORDS

You may enter up to 12 keywords per reference. The keywords are entered one at a time followed by RETURN. When you have entered as many keywords as you desire, the F2 function key allows you to exit to the key dates. At any time while you are entering keywords, you may enter F1 to return to the first keyword. (Refer to section 4.5 on input and edit of data). When you are verifying a reference and editing the keywords, the program will list all 12 and allow you to enter the number of the keyword you wish to change. You edit that keyword on the bottom of the screen entering RETURN when you are done. After completing all the keyword editing you desire, enter RETURN instead of a keyword number to proceed to the dates.

KEY DATES

You may enter two dates for each reference: a FROM date and a TO date. The dates are entered as month, day, year separated by commas. The year may be stated either in full format (e.g., 1982) or abbreviated format(e.g., 82). Either format is OK, but be sure to be consistent. The dates are used to help you locate references via the cross reference table and all dates must be entered in the same format in order to allow valid date comparisons. You may skip the dates all together by just hitting RETURN for each. If you want to specify a date range, enter both the FROM and the TO dates. To enter a specific date, enter only the FROM date and the program will assume that the TO date is the same. You may omit the month and day by entering two commas followed by the year (e.g., ",,1898"). You may enter a BC date by preceding the year with a minus sign. All month and day numbers are ignored for BC dates. When you are verifying the reference data, just hit RETURN if you do not wish to change a date. You must reenter the month, day, and year in order to change a date.

After you have entered the above data you will be presented with three choices for proceeding:

Verify
Save
Quit (Delete)

The Verify option allows you to review the data as you have entered it and change it if you wish. To accept the data as is, simply hit RETURN for each data element.

The Save option stores the data into the output file buffer. When the buffer is full, it will be written to the file and you may encounter a slight delay.

The Quit option allows you to scrap the data you have just entered. It

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will not be written to the output file.

4.1.3 End File

When you have no more data to enter and you have indicated End of File, the program writes any remaining data in the buffer to the output file and closes it. You are returned to the main option menu.

4.2 UPDATE/APPEND FILE

First of all, this can only be done if you have a disk drive selected for input, output, or both. If you selected tape for both input and output devices, the program will say CANNOT UPDATE and return you to the main option menu after you hit any key on the keyboard.

The program opens an input file and then simultaneously opens an output file. It reads records from the input file, sequentially, and writes them to the output file. The next record to be processed, that is one already having been read into memory from the input file, is identified at the top of the screen of the Update menu. A source record is identified by its source number. A reference is identified by its source number and its reference number. If there are no more records in the file, it will display End of File at the top of the screen.

Upon entering the Update/Append function, you will first be asked the name of your input file. The program will supply the "RA." prefix so you do not need to enter it. Enter the file name and RETURN. When the input file is successfully opened, it will ask you for the name of your output file. Again, the "RA." prefix is supplied by the program. Enter the output file name and RETURN. The program will read the first record of the input file into memory and proceed to the Update/Append menu.

4.2.1 Update/Append menu

The menu looks like this:

```
NEXT:
   SRC= x   REF= y       (or END of FILE)

UPDATE:
   S SOURCE
   R REFERENCE
   N NEXT RECORD
   E END FILE

INSERT:
   U SOURCE
   F REFERENCE
```

There are two kinds of update activity represented by this menu. You may update existing records from the input file (choose one of the UPDATE options) or you can insert new records (choose one of the INSERT options). Each of these is described below.

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4.2.2 Update options

The four options listed under UPDATE are as follows:

S SOURCE
: This asks you to identify which source record you wish to update. RETURN will allow you to update the next record (as shown at the top of the screen). Or you can enter the number of the source you want to update. If the number you enter is not the next record, the program will save the next record and read another. It will repeat this until it either finds the source you have identified or reaches the end of the input file.

R REFERENCE
: The program first asks the number of the reference to be updated. Then it asks for the source number. If you hit RETURN to use the current source number, the program will search only until it finds the reference or until it finds another source record. If you chose a new source number, then it will search first for that source and then the reference within that source. It will search to the end of file if no match is found.

N NEXT
: This simply allows you to update whatever record is indentified at the top of the screen.

E END FILE
: This ends the update function, copies all remaining records from the input file to the output file, and presents you with choices for proceeding (see below, 4.2.4).

4.2.3 Insert options

There are two insert options: for source and for reference. A record is always inserted prior to the next source record from the input file.

U SOURCE
: The program asks for the source number. If the next record (top of screen) is a source, it will write it temporarily to disk and allow you to add a new source. After you save the new one (or quit), it will reload the one from the temporary file. If the next record is a reference it will read and copy the records until it finds a source record or end of file. This maintains the integrity of a source and its associated references.

F REFERENCE
: The program expects to add a reference only at the end of the current list of references. So it must either have a source for the next record or it will read and copy the input file until it finds the next source or end of file.

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When you get to the end of the input file, you will have three options:

ANOTHER INPUT FILE
This will allow you to combine several input files into one output file.

APPEND
This will take you to the NEW FILE function (described above in section 4.1) where you can add references and sources to the end of the output file. Once you choose this option, you can no longer add data from any input file.

QUIT
This takes you back to the program's main option menu. Both input and output files are closed.

4.3 CHANGE I/O

Use this function to change your current definition of disk or tape for input and output device. See section 3.3, Input/Output Options.

4.4 QUIT

When you are completely finished doing RA.BUILD functions, enter Quit to return to normal VIC 20 mode.

4.5 Input/Edit Mode

You are in Input/Edit mode any time you enter or update one of the following data items: author, title, bibliography, page number(s), comments, and keywords.

This is a powerful edit mode which gives you all the editing capability of the normal VIC 20 keyboard. When you are entering data, the ▒ character is the cursor. When you are modifying data, the cursor position is indicated by the reversed field. The first reverse field character is where the cursor is located. You may replace a character simply by typing over it. The following keys have special significance:

INST/DEL	Deletes the character to the left of the cursor
INST/DEL Shifted	Inserts a space to the left of the cursor
CLR/HOME	Takes you back to the beginning of the data item
CLR/HOME Shifted	Same as CLR/HOME
CRSR-Down	Moves the cursor down one line (may wrap around)
CRSR-Up	Moves the cursor up one line unless it's on the top line
CRSR-Right	Moves the cursor one position to the right
CRSR-Left	Moves the cursor one position to the left
RETURN	End of Input/Edit on current data item
F1	Same as RETURN. Has special meaning in editing comments and keywords.

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F2	Same as RETURN. Has special meaning in editing comments and keywords.
F3	Positions cursor at the end of the data item
F5	This takes all the characters from the current cursor position to the end and places them in the next block. Use only when editing comments.
F8	Deletes the remainder of the data item
"	(Double quote) This character is always ignored.

5.0 RA.XREF.BUILD USAGE INSTRUCTIONS

RA.XREF.BUILD is the program which creates the cross reference table. There are two groups of data which are essential to the cross reference table. One is the date periods and the other is the sorted keyword list with associated references. Refer back to section 2.2, Cross Reference File (RAX. prefix). The program builds the cross reference table in memory so the more memory you have available, the larger the cross reference table can be. Refer to section 10.0, Program Modifications, if you need to tailor the program to fit the pattern of your data more specifically.

5.1 Loading RA.XREF.BUILD

Be sure to turn on all peripheral devices (disk) before beginning any of the following steps. Turning the power of a device on during the execution of a program may sometimes cause the computer to reinitialize itself, thus losing both program and data from memory.

5.1.1 Loading from disk

If you have not already done so, follow the instructions in section 1.3, Backing up programs onto disk from tape. To load the program from disk, place the proper diskette in the disk drive port and type:

LOAD "RA.XREF.BUILD",8 (RETURN)

When the program is loaded, the screen will display READY.

5.1.2 Loading from tape

RA.XREF.BUILD is the first program on side B of the program tape. The first step is to place the program tape in the cassette drive with side B up, rewind the tape, and type:

LOAD "RA.XREF.BUILD" (RETURN)

You will be prompted to press PLAY on the tape drive and when the program is loaded, you will see READY on the screen.

5.2 Running RA.XREF.BUILD

After the program is loaded, type

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RUN (RETURN)

and you're ready to begin building your cross reference.

6.0 RA.XREF.BUILD MAIN OPTION MENU

There are five options available via the main option menu of the RA.XREF.BUILD program. They are:

SET DATES/NEW XREF
BUILD XREF
SAVE XREF
LOAD XREF
QUIT

Enter the character which corresponds with the option you wish to choose. Each option is described in detail below.

6.1 SET DATES/NEW XREF

This option clears all keyword data currently in memory and allows you to do the necessary setup before actually building your cross reference table. If there are already date periods in memory you may edit them or you may clear the dates and start over.

There may be up to 20 date periods where each period is defined by its ending date. Each date is entered as month, day, year separated by commas. You may omit the month and/or day (you still need the commas. E.g., ",,1898") and the program will assume 12 and 31 respectively. You may enter a BC date by placing a minus sign before the year and omitting the month and day (E.g., ",,-320" for 320BC). The last date entered must always be: 99,99,9999. The program will supply this ending date if you do not.

After you have entered the date periods, the program will display the full list in an abbreviated format: YYYYMMDD where YYYY is the year, MM is the month, and DD is the day. Check the dates carefully. To change one, enter the number of the date, and reenter month, day, and year. When you are satisfied with the dates, enter RETURN to return to the main option menu.

It is a good idea to SAVE the dates as a separate file if you plan to create more than one cross reference table using the same date periods. You may then reload the date file before you begin each cross reference table and get consistent dates without having to reenter them each time. Choose the SAVE XREF option when you return to the main option menu after entering the date periods as described above. Use the LOAD XREF option when you want to recall the dates.

6.2 BUILD XREF

If there are no date periods defined yet in memory, then the program will automatically switch you to the SET DATES option (see section 6.1 above).

BUILD XREF adds data to the cross reference table in memory from one input reference data file (RA. prefix). There is no limit to the number of

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files which can be used to build the cross reference table as long as there is enough memory and enough keyword slots. The program will first ask if your input file is from disk or tape. Then it will ask you the name of the input file. The program will supply the RA. prefix so you need not enter it. Just enter the remainder of the input file name and RETURN.

The cross reference table is built in the VIC 20 memory so there is a limit to its size. The main option menu shows you how much memory you have available and the number of keyword slots you have remaining. The table is made up of "slots" each of which contains: the keyword and 5 repetions of: source id number, reference number, and date period range associated with a particular reference. If there are more than 5 references with a given keyword, then another slot or slots will be used.

When the program reaches the end of the input file, it will return you to the main option menu.

6.3 SAVE XREF (Cross Reference Table)

When you have finished building your cross reference table, you should SAVE it so you can print it with the RA.PRINT program.

First, the program will ask if your output file is to be on disk or tape. If disk, skip the remainder of this paragraph. When you save onto tape, place your output tape in the cassette drive and rewind the tape. The program will ask if you wish to skip over some files which already exist on the tape and you must answer Y or N (yes or no). If you do wish to skip over one or more files then you must enter the name of the last file to be skipped (the full file name, including any prefix) and RETURN. When the program finds the file (be patient), it will print SKIPPING.

Next the program will ask for the name of your output file. The program will automatically supply the RAX. prefix so you don't need to enter it. Enter the file name and RETURN. The program will print SAVING and when the entire file is saved, it will return you to the main option menu.

6.4 LOAD XREF (Cross Reference Table)

This function clears all data currently in memory and loads it from your input file. You may LOAD a cross reference table in order to add more data into it. Or you may want to load a file which contains only date periods so you can create a new cross reference table using consistent dates.

The program will first ask whether you wish to load from disk or tape. Then the program will ask you for the name of the input file. It will supply the RAX. prefix. Enter the file name and RETURN. The program will print LOADING and when it is done it will return you to the main option menu.

6.5 QUIT

When you are finished running RA.XREF.BUILD, this option selection will return you to normal VIC 20 control.

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This program is used to print the contents of either a Reference Data File (RA. prefix) or a Cross Reference Data File (RAX. prefix).

7.1 Loading RA.PRINT

Be sure to turn on all peripheral devices (disk, printer) before beginning any of the following steps. Turning the power of a device on during the execution of a program may cause the computer to reinitialize itself, thus losing both program and data from memory.

7.1.1 Loading from disk

To load the program from disk, place the proper diskette in the disk drive port and type:

LOAD "RA.PRINT",8 (RETURN)

When the program is loaded, the screen will display READY.

7.1.2 Loading from tape

RA.PRINT is located as the second program on side B of the program tape. Place the program tape in the tape drive with side B up, rewind the tape, and type:

LOAD "RA.PRINT" (RETURN)

You will be prompted to press PLAY on the tape drive and when the program is loaded, you will see READY on the screen.

7.2 Running RA.PRINT

After the program is loaded, use one of the following RUN statements, depending on whether you are using a VIC printer or an RS-232 printer.

VIC printer: RUN (RETURN)

RS-232 printer: RUN 2 (RETURN)

If you are using an "intelligent" interface which makes your printer look like a VIC printer (device number 4) and which performs translation from PET ASCII to the normal ASCII used by most non-Commodore printers, then follow the instructions for VIC printer. Most serial-to-parallel interfaces make your printer look like a VIC printer.

The first thing you see when you run the program is either VIC PRINTER (RETURN) or RS-232 PRINTER (RETURN) at the top of the screen. This will help you to verify that you used the correct RUN statement. If it states the correct printer, hit RETURN. If not, hit RUN/STOP and RESTORE keys simultaneously and run the program again.

See section 10.0, Program Modifications, for more information on setting the program up to run with your printer.

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7.3 Input Options

You will be asked to define which devices you will be using for input and output. The program works with either disk or tape, so enter the letter which corresponds. These choices are in effect for the duration of this run of the program.

Once you have made your selection and continued with the program, you may change input/output options by selecting the Change Input option from the main menu.

8.0 RA.PRINT MAIN OPTION MENU

There are four basic functions of the RA.PRINT program available from the main option menu:

PRINT RA. FILE
PRINT RAX. FILE
CHANGE INPUT
QUIT

Enter the character which corresponds with the option you wish to choose. Each of these is described in detail below.

8.1 PRINT RA. FILE

First the program will ask you the name of your input file (the "RA." prefix will be supplied automatically). Enter the file name and RETURN. When the file has been successfully opened, the program will tell you to position the paper. Position the paper so that the print head is about 2 or 3 lines below the perforation. Hit any key when the paper is ready and the program will proceed with printing.

You can interrupt the printing by hitting any key on the keyboard. The program will stop only at the end of a complete source or reference. You will be returned to the main option menu.

8.2 PRINT RAX. FILE

First the program will ask you to enter the name of your input file. The program will supply the "RAX." prefix so you do not need to enter it. When the file has been successfully opened, the program will instruct you to position the paper. Adjust the paper in the printer so that the print head is 2 or 3 lines below the perforation. Hit any key to start the printing.

You may interrupt the printing at any time after the dates have been printed by hitting any key on the keyboard. You will be returned to the main option menu.

The cross reference print-out shows each keyword followed by two numbers in the format:

SS.RR DD or SS.RR DD-DD

where SS is the source number, RR is the reference number and DD or DD-DD is the period or range of periods in which the reference dates fall.

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8.3 CHANGE INPUT

Choose this option if you wish to redefine the device to be used for input. Refer to section 7.3 above.

8.4 QUIT

Select this option when you are all finished with printing and wish to return to normal VIC 20 control.

9.0 ERROR CONDITIONS AND CORRECTIVE ACTION

9.1 LOAD Error

If you get an error while loading the program, rewind the tape or reseat the diskette in the port, and try again. If the error occurs repeatedly, the problem is either with the tape, the tape drive, the diskette, or the disk drive (depending on the medium you are using). We recommend that you first try cleaning the read heads (kits are available from your local computer dealer for both disk and tape). If, after cleaning, the load error occurs intermittently, your tape or disk drive may need realignment. This service can be performed by your dealer.

TOTL Software will replace any original tape that won't load, regardless of cause, within 30 days of purchase.

9.2 STRING TOO LONG or FILE DATA ERROR While Loading a Data File

If this error occurs while loading a file from your input device, it means there is a problem with the tape, your tape drive, the diskette, or the disk drive. Frequently, just loading it again will work. If not, try cleaning the read heads, using a new tape or diskette, or check with your dealer to see if your equipment needs service.

9.3 Program Ends With Error

9.3.1 RA.BUILD

If for any reason the program ends with an error while you are creating an output file (either NEW FILE or UPDATE/APPEND), you may immediately type the two lines below to properly close the output file and preserve the data you have created.

PRINT#2,9 (RETURN)

CLOSE 2 (RETURN)

9.3.2 RA.XREF.BUILD

Rerun the progam and re-input the files.

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Rerun the program and print the file again.

9.4 You Accidentally Hit RUN/STOP

If, while you are entering data, you accidentally stop the program, just type:

CONT (RETURN)

and you will resume where you left off without losing any data. If the screen format has gotten confused, just continue and it will clear itself up.

9.5 Your File Cannot Fit on the Tape

9.5.1 RA.BUILD

If you go past the end of the tape and the tape drive turns itself off, press the RUN/STOP key. The tape file is incomplete and will cause a program error when you try to read it. You must reenter the data. To help you remember what you entered, run RA.PRINT and print as much of the file as you can until the program stops.

9.5.2 RA.XREF.BUILD

If you go past the end of the tape and the tape drive shuts itself off, hit the RUN/STOP key and type:

GOTO 10 (RETURN)

This returns you to the option menu so you can save the file again on another tape.

9.6 Printer and/or Paper Problems (RA.PRINT)

Sometimes there will be a problem communicating with the printer, the paper may jam, or some other problem may occur with the printer. Normally you can interrupt printing by hitting any character on the keyboard. If, however, the program does not respond to a keyboard character and it is not printing, you must turn off the printer. This will cause an error break in the program to occur. When the program ends, try re-running the program. You may also try turning all equipment off and back on to reinitialize the entire system.

WARNING: We have encountered a problem with the VIC 1515 printer "hanging up" and failing to print in some circumstances. The "hang up" condition is usually triggered by a SAVE operation to tape or disk. A read operation from the same device often clears the condition. Commodore is aware of the problem but at this writing, has not announced a solution. In using the RA.PRINT program, the problem may often be cleared by doing a VERIFY on any tape file.

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9.7 Other Error Messages

9.7.1 RA.XREF.BUILD: OUT OF MEMORY

There is not enough memory to add this tape file to the cross reference table. You will have to RUN the program again and use fewer files in building the table.

9.7.2 RA.XREF.BUILD: LOST (data)

This message occurs when you have run out of room for more keywords. The data is: keyword, source, reference, and date periods of the lost reference. You can run the program again with fewer input files or you may refer to section 10.0, Program Modifications, for tips on increasing the number of keyword slots available.

9.7.3 RA.XREF.BUILD: Wrong Format

This message is followed by two numbers: number of keywords and number of repetions. It is the number of repetions which does not match that currently defined in the program. Refer to section 10.0, Program Modifications on how to modify the program to match the file. Modify the program in memory and run it again.

9.7.4 RA.PRINT: Wrong File Format

Same as 9.7.3 above.

10.0 PROGRAM MODIFICATIONS

10.1 Printers (RA.PRINT only)

10.1.1 For RS-232 Interface

The RA.PRINT program is designed to handle an RS-232 printer by using RUN 2 to run the program. You may need to make a few modifications, depending on your printer, as described below.

Line 3 of the program contains the RS-232 OPEN statement. Check the printer specifications and the "VIC 20 Programmer's Reference Guide" for the necessary control characters to specify baud rate setting, parity, etc. Modify line 3 as required:

```
3 OPEN lfn,2,sa,CHR$(x)+CHR$(y):GOSUB9000:PR=lfn:PT=2:GOTO1000
```

where lfn is the logical file number, sa is a secondary address value which depends on your printer, x is used to specify baud rate (e.g., 6 for 300 baud), and y specifies parity (e.g., 0 for parity off, 8 bits transmitted)

To eliminate the need to remember to say RUN 2 to get the RS-232 logic, you may delete line 1 from the program.

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10.1.2 PET to normal ASCII character translation

If your printer interface does not do the translation from PET ASCII to standard ASCII (in other words, if upper case prints as lower and vice versa), you will want to activate the built-in translation routine. Remove the characters: "REM:" from the beginning of each program statement from 8500 to 8509.

10.1.3 Normal and expanded characters

The program is set up for the VIC printer's expanded characters. You may change the values for normal character mode (NC$) and expanded mode (EC$) in line 9040.

10.2 RA.XREF.BUILD Changes to handle more keywords

If you are having problems getting all your keywords into the table but have plenty of memory left, you may want to exert more control over the way the program allocates slots. There are two program variables which you can modify: one is MK, the maximum number of keyword slots. The other is N, the number of sets of source/reference/date data in each keyword slot. MK is normally computed by the program based on the amount of available memory. N is set to 5. To change either of these, list line 9100 of the program and change it for your needs. (E.g., MK=150:N=4). N must never be greater than 5.

10.3 RA.PRINT if RA.XREF.BUILD was changed

If you changed N in program RA.XREF.BUILD then you will need to change the related variable in RA.PRINT. List line 9100 and change N to be the same value. N must be less than 5.

10.4 RA.PRINT for different paper size

List line 9060 of the program. Variable LP is lines per page (normally 66) and LW is line width in characters (normally 80). Change these values as appropriate for your printer. The variable LW is only used when printing RA. files.

10.5 40 or 80 Column Screen Formats

Change the variable CL to 40 or 80 from the normal 22 for a standard VIC. The line numbers by program are:

RA.BUILD	9060
RA.XREF.BUILD	9010
RA.PRINT	9060

11.0 SOFTWARE SUPPORT

TOTL Software will provide support to any registered owner of this product. To register, fill out and mail the post card found in the product

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package as soon after purchase as practical.

If you should encounter any problem with this product or you desire technical assistance, send a description of the problem or question accompanied by copies of any printouts and a cassette tape with a copy of the program if you have modified it and, if necessary, a copy of your data file. Be sure to include your name, address, and phone number plus $2.00 for postage and handling. We will return your tape with our reply.

We also welcome any comments you may have and encourage your suggestions for improvements and new features for future versions.

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If you receive a faulty tape or disk (see section 9.1, Load Error), simply return it along with your name, address, and a brief description of the problem. We will send you a replacement promptly, at no charge. Our Warranty is limited to replacement of the program tape or disk. No other liability is expressed or implied.

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13.0 SAMPLE OUTPUT

RESEARCH ASSISTANT

FILE: RA.SADDLES

SOURCE: 101
AUTHOR: Beatie, Russell H.
TITLE: Saddles
BIBLIOGRAPHY: University of Oklahoma Press, Norman, 1981

REFERENCE: 1 PAGE(S): 15-16
COMMENTS:
Assyrians 9th cent BC first mounted warriors. First reference to cavalry 890 BC (Chevenix-Trench, 16). Early warriors adept enough to fire arrows backwards as they were retreating, giving rise to 'Parthian shaft' phrase-a parting verbal shot when leaving. (Jankovich, 43)
KEYWORDS: assyrian cavalry parthian retreat
KEY DATES: 0/ 0/-890 TO 0/ 0/ 0

RE
FI

REFERENCE: 2 PAGE(S): 16
COMMENTS:
Scythians were warlike nomads, almost lived on horseback. Their cavalry was an unorganized group. Macedonians used triangular mounted phalanx made possible by their very long lances. From this first organization cavalry developed into highly specialized corps with heavily armored shock cavalry, and lightly armored, more mobile light cavalry.
KEYWORDS: scythian macedonian cavalry lances tactics armor mobility
KEY DATES: 0/ 0/-700 TO 0/ 0/ 0

REFERENCE: 3 PAGE(S): 16
COMMENTS:
Greeks began using mounted horsemen at war in the late 6th cent, but Philip II of Macedon (ruled (359-336 BC) was a master of cav tactics. When Philip was assassinated his son Alexander succeeded him.
KEYWORDS: greek cavalry philip alexander tactics
KEY DATES: 0/ 0/-359 TO 0/ 0/-336

REFERENCE: 4 PAGE(S): 16
COMMENTS:
Alexander the Great only 20 when he took over the cavalry. Defeated Persians largely with the cavalry, which he personally led. 326 BC defeated a superior force by brilliant tactics. Conquered most of known world by time of his death in 323 BC.
KEYWORDS: greek cavalry alexander persian tactics
KEY DATES: 0/ 0/-356 TO 0/ 0/-323

DATE PERIODS:

0) NO DATES
1) THRU 200 BC
2) THRU 12/31/1755
3) THRU 12/31/1775
4) THRU 03/01/1833
5) THRU 01/31/1846
6) THRU 02/02/1848
7) THRU 04/14/1861
8) THRU 05/26/1865
9) THRU 02/14/1898
10) THRU 07/04/1902
11) THRU 03/14/1916
12) THRU 04/05/1917
13) THRU 11/11/1918
14) THRU 12/06/1941
15) THRU 08/10/1945
16) THRU 06/24/1950
17) THRU 07/27/1953
18) THRU 12/31/1961
19) THRU 06/30/1975
20) TO END OF TIME

KEYWORD

SRC.REF	DATES	SRC.REF	DATES	SRC.REF	DATES	SRC.REF	DATES	SRC.REF	DATES
1st cav									
101.0014	7								
alexander									
101.0003	1	101.0004	1	101.0005	1				
armor									
101.0002	1	101.0009	1-2	101.0011	2	101.0012	2	101.0013	2
assyrian									
101.0001	1								
black									
101.0017	7-15								
bucephalus									
101.0005	1								
campbell									
101.0015	4-7	101.0022	7						
cannae									
101.0006	1								
cartnage									
101.0006	1								
cavalry									
101.0001	1	101.0002	1	101.0003	1	101.0004	1	101.0006	1
101.0008	1	101.0009	1-2	101.0010	2	101.0013	2	101.0016	7-15
chain-mail									
101.0011	2								
charge									
101.0012	2								
china									
101.0009	1-2								

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for the VIC 20™ and COMMODORE 64™

WORD PROCESSING

TOTL.TEXT is a complete professional word processing program for tape and disk systems. It has machine language speed for loading and printing, with program accessibility for customization of the BASIC language. It has easy to remember commands with input and edit in a single mode. It merges with the label program, moves blocks of text, has single-stroke formatting. Its features vary with machine and memory. Footnotes, footings, headings, direct keyboard input, and the ability to use the full capabilities of your printer make this one of the best bargains in word processing.

MAILING LIST AND LABELS

TOTL.LABEL is an inexpensive and versatile program for the storage and printing of address labels, menus, or any other data which must be sorted, easily accessed, and selectively printed. The available number of lines and characters per line are user defined. The first line(s) can be suppressed while printing, allowing customer information to be stored with your mailing lists. Alphanumeric sorting is automatic. Labels can be merged with word processing for form letters.

TIME MANAGEMENT

TOTL TIME MANAGER is a powerful tool for personal use and for busy professionals for whom time and organization are important. It enters data about activities and project categories, responsible individuals and teams, and actual or proposed dates and times for onset and completion. The program performs inquiry to the screen, and prints bar charts (54 optional formats) to display activities for periods from 4 years to 48 hours.

KEYWORD CROSS REFERENCE

RESEARCH ASSISTANT is a system for anyone who has ever struggled with a 3 x 5 filing card system to keep track of information from books, journals, magazines, or newspapers. Enter and print out detailed source and reference information, including extensive notes. It sorts and searches on the basis of keywords and date ranges. It stores your data on disk or tape. Features vary with machines and use of disk or tape.

BUSINESS ACCOUNTING

TOTL BUSINESS is the answer to the needs of small business people who have to keep track of accounting and customer records for a service, inventory, or retail operation. This is a set of programs for use with disk and printer that maintains and updates customer records, enters accounts payable and receivable, keeps inventory control, and prints invoices and statements on standard business forms. This is an inexpensive straightforward business accounting system which you can't afford to pass up.

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